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ABSTRACT

The effects of multi-age grouping on achievement and self-concept were studied. The achievement variables examined were reading and mathematics achievement as measured by the Stanford Achievement Tests. The Piers-Harris Children's Self-Concept Scale was used to measure self-concept. The groups studied consisted of single-age and multi-age classrooms of children in grades one through five. No significant differences were found between children in multi-age and single-age classrooms on any of the achievement measures. The multi-age classrooms had significantly higher mean scores on one of the six factors in the self-concept scale--happiness and satisfaction. The multi-age classrooms had slightly but consistently higher mean scores on the other five factor scores and on the total self-concept score but the differences were not significant. (Author)

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THE EFFECTS OF MULTIAGE GROUPING ON ACHIEVEMENT AND SELF-CONCEPT

by

Joyce W. Way, Ed.D.

April 1979

The author wishes to thank the teachers and administrators in the Fayetteville-Manlius Schools for their cooperation in this study.

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THE EFFECTS OF MULTIAGE GROUPING ON ACHIEVEMENT AND SELF-CONCEPT

INTRODUCTION

As the title of this report states, the purpose of this study was to explore the effects of multiage grouping on achievement and self-concept. Multiage grouping, sometimes referred to as multigrading, is a classroom organizational structure in which children of different ages are placed together in classrooms without consideration of their levels of ability or achievement. A typical multiage classroom spans two or three years although occasionally more ages are grouped together. Multiage grouping is often used in secondary schools, particularly for small elective classes, but it is unusual to find multiage classes at the elementary level. Multiage classrooms were common in the educational history of this country's rural areas where this classroom structure has been affectionately referred to as the "old country school." Multiage grouping seldom has been seen in modern city and suburban schools. Recently some of these modern schools have been experimenting with a variety of elementary classroom organizational structures, one of which is multiage grouping.

It should be understood that multiage grouping is not contingent upon any particular educational theory or practice but refers only to the classroom organizational structure. Under this structure, a child entering a multiage classroom would typically remain with this classroom for the two or three years that the classroom spans. As an example, a six-year old entering a classroom of six-, seven- and eight-year olds would be expected to remain with this classroom until he/she was nine-years old. Proponents (Carlson, 1958; NEA, 1968; Wolfson, 1967) believe this classroom organizational structure will provide maximum opportunities to meet individual needs of

children. These advocates hope multiage grouping will encourage teachers to move away from the idea of a predetermined, sequential curriculum that is relatively the same for all children in a class. They recognize that the organizational structure itself will not bring about changes in classroom teacher behavior but they think multiage grouping can encourage flexibility in classroom environments. Multiage grouping is believed to support the development of individuality in children and to encourage the type of teaching that fosters this development.

LITERATURE REVIEW

Theoretical Background

There are various arguments for multiage grouping by many different authors. Several British authors (Brown & Precious, 1969; Mycock, 1967; Ridgway & Lawton, 1969) argue that multiage grouping increases children's security because the academic setting remains stable for the two or three years that a child remains in one classroom. They contend that multiage grouping fosters the socialization of the younger children who are joining an established group of children, a group in which the younger children may already have experienced friends. Another beneficial effect attributed to multiage grouping is the mutual aid children consciously or unconsciously give to each other. According to this theory, the leadership skills of older children are fostered as they help the younger children. The younger children, in turn, are suppose to learn from the older children.

Ridgway and Lawton (1969) reason that multiage grouping permits variation in personal growth. During the activities part of the day, children can work with other children exploring similar interests regardless of their levels of development. The type of interaction which can be permitted in multiage classrooms is believed to be conducive to learning.

Mycock (1967), too, has suggested a variety of beneficial affective results attributed to multiage grouping.

It should be pointed out that these British authors consider multiage grouping to be tied to the open school philosophy with its emphasis on an integrated day where children are allowed to select activities and projects. In this country, Duke (1973) also sees multiage grouping as a component of the open school philosophy.

Other authors (Carlson, 1958; Franklin, 1967; NEA, 1968; Stehney, 1970; Wolfson, 1967) see multiage grouping as providing the climate for individualized learning. Stehney (1970) states that the philosophy behind multiage grouping is that a wide range of differences leads to a richer environment. Wolfson (1967) states that the purposes of multiage grouping are to encourage teachers to move away from the idea of a predetermined, sequential curriculum that is relatively the same for all children in the class, to help teachers see children as individuals, and to move unnecessary restrictions on the level and direction of children's learning. These authors emphasize the many affective benefits a multiage grouping structure can provide. They do point out that providing the climate will not in itself result in all the argued benefits. Rather, the organizational structure allows teachers to provide for individual differences and to provide a flexible program but it will not guarantee that teachers will provide them.

Research Findings

The research on multiage grouping has focused primarily on reading and mathematics achievement and on various affective measures. The conclusions from some of these studies seem unwarranted because of troublesome research designs. Shroeder and Nott (1974) did not submit their data to any statistical

analysis. While Adams (1953) and Hamilton and Rehwoldt (1957) did indicate in their reports that statistical analyses were performed, the type of statistical analyses used are unclear for these two studies. Purl and Curtis (1970) not only failed to include any information on the data analysis techniques they used for their study, but the report also lacked information on the study design and the instrumentation. Another study on multiage grouping (Schrankler, 1976) did perform analysis of variance on data composed of a complete multiage group, a restricted multiaged group and a control group. However, the conclusion that the two multiaged groups scored higher on six of the seven self-concept measures seems unwarranted since there is no indication that a multiple comparison procedure was used to determine exactly where the significant differences were among the groups. The differences may have been between the two types of multiage grouping arrangements rather than between the multiage grouping arrangements and the control group.

The Finley and Thompson (1963) study defined a multigraded school as a school with four teachers or less while single-graded schools were schools large enough to have at least one teacher per grade level. The school sizes for the single-graded schools ranged from 300 to 1,322. The report infers that there were considerable school size differences between the multigraded schools and the single-graded schools. Furthermore, the multigraded arrangements within the multigraded schools are not reported. While grades three and five were studied, it is not known whether these third and fifth graders were in classrooms with two grades combined or three grades combined or whether these children were the youngest or oldest in the classrooms.

With one exception, the remaining studies which examined academic achievement in multiage and single-age classrooms found no differences

between these two types of classroom arrangements (Chace, 1962; Hoen, 1972; MacDonald & Wurster, 1974; Mycock, 1967; Papay, Costello, Hedl, & Spielberger, 1975; Yerry & Henderson, 1964). The only exception was a study of gifted first graders (Runyon, 1962). The gifted first graders in the multiage classrooms had higher scores than the gifted children in the single-age classrooms on the Word Discrimination and Arithmetic Scales of the Metropolitan Achievement Tests. However, there were no significant differences between these two groups on the Reading or Word Knowledge scales of the MAT.

When variables related to affective development were studied, multiage classrooms were either higher on the affective measures examined or were not significantly different from single-age classrooms on the affective measures. Mycock (1967) found no differences between multiage and single-age classrooms on measures of social adjustment and anxiety about school. Hoen (1972) found no differences between multiage and single-age classrooms on either a self-concept instrument or a pupil behavior inventory. Yerry and Henderson (1964) found no differences between these two types of classroom organizational structures on either a measure of school anxiety or a measure of acceptance or friendship among children.

Two studies (Junell, 1971; Papay et. al., 1975) reported higher scores for multiage classrooms on the affective measures studied. The Papay et. al. (1975) study reported less trait anxiety (the general anxiety-proneness of an individual) in the multiage classrooms. State anxiety (the tension, nervousnesss, worry and apprehension that is the result of a stressful situation) was lower for the second year multiage classroom children than for the corresponding single-age classroom children but no difference was found between these two classroom types for the first year children. Junell (1971) examined a variety of affective measures. The self-concept measures most closely allied to academic performance produced the greatest differences between the two types of classroom organi-

zational structure with the results favoring the multiage classrooms. The data also indicated that multiage grouping was more favorable to boys than to girls. Runyon (1962) found no differences between gifted first graders in multiage classrooms and single-age classrooms on the Social Adjustment Scale of the California Test of Personality.

There appear to be few differences between multiage classrooms and single-age classrooms on academic achievement and affective measures. When differences do exist between the classroom types, they tend to favor the multiage classrooms and be on affective measures. It should be noted that most of the study settings were not in typical U.S. public schools. The setting for the Mycock (1967) study was the British Infant Schools and the Hoen (1972) study used low achieving children in Canada. The subjects in the Papay, et.al. (1975) study were disadvantaged children in a Title I program while the Chace (1962) study used a laboratory school for the multiage classrooms and public schools for the single-age classrooms. The Runyon (1962) study focused on gifted first graders in multiage and single-age classrooms. Two of the studies (Mycock, 1967; Papay, et.al., 1975) focused on only first and second graders and Hoen (1972) used only third graders. The study described in this report explored the effect of multiage grouping on achievement and self-concept in a typical suburban public school setting in the United States. The study included multiage classrooms of both two ages combined and three ages combined and the children ranged in age from six to ten years. The purpose of this study was to determine if this typical public school setting would produce results consistent with the special setting results reported in the literature.

STUDY DESIGN

Population

The setting for this study was a suburban school district with four elementary schools. Each of these elementary schools had both single-age and multiage classrooms. The multiage classrooms were in their third year of operation when this study was conducted. All four elementary schools were included in the original study design, however problems at one of the schools during the time of data collection made it possible to collect data at only three of the four school buildings. This last minute change limited the number of multiage classrooms that could be studied. Table 1 shows the number of children studied in each type of classroom age combination. The school had a very homogenous population of middle

TABLE 1

Number of Children Included in Study for Each Grade And Grade Combination

Age/ Age Combination	Grade/ Grade Combination	Number of Children
6	1	42
7	2	48
8	3	46
9	4	47
10	5	48
6-7	1&2	63
8-9	3&4	22
9-10	4&5	26
8,9,10	3,4,5	24
Total		366

class families in all of the schools. The multiage teachers had taught in multiage classrooms for two or more years. There were some children who were in their first year of multiage classroom attendance and, of course,

all of the six-year olds were new to the multiage classroom structure.

Instrumentation

The Comprehensive Tests of Basic Skills provided the achievement data for this study. This is a well known standardized achievement test battery whose validity and reliability data are reported to be adequate in Buros' Seventh Mental Measurement Yearbook (1972). Total scores in reading, mathematics, language arts and study skills were used for the study.

Self-concept was measured using the Piers-Harris Children's Self-Concept Scale. This scale is an 80 item self-report instrument designed for elementary children. The authors (Piers & Harris, 1964; Piers, 1969, 1977) developed the scale as a measure of general self-concept. The items are written as simple descriptive statements, such as "I am a happy person," with a yes/no response. The instrument produces a total score plus scores on six factors: behavior, intellectual and school status, physical appearance and attributes, anxiety, popularity, and happiness and satisfaction.

The authors report reliability coefficients ranging from .78 to .93 for internal consistency using the Kuder-Richardson 21 Formula. Test-retest coefficients after a four month interval ranged from .71 to .77. The authors attempted to build content validity into the scale by defining the universe to be measured as the areas about which children reported qualities they liked and disliked about themselves. They used Jersild's (1952) collection of children's statements about what they liked and disliked about themselves. Concurrent validity with other self-concept measures have resulted in reasonably high validity coefficients (Buros, 1972).

Procedures

Achievement and self-concept data were collected in both multiage and single-age classrooms in each of the three elementary schools used in the

study. All of the multiage classrooms in the three elementary schools were included in the study and two randomly selected single-age classrooms were used for each single-age grouping.

The achievement battery was administered to all children in grades two through five by the school district. Achievement data were not available for the six-year olds (first graders). When the school district received their testing results from the test publisher, total scores for reading, mathematics, language arts and study skills were recorded for all children included in the study.

The self-concept instrument was administered by reading each item to the children so that reading disabilities would not affect the scores. Special answer sheets were developed for the six- and seven-year olds (See Appendix A). Pictures replaced item numbers and happy and unhappy faces were used to represent 'yes' and 'no' responses. A pilot study indicated that six- and seven-year olds tired when the instrument was administered in one setting. As a result the instrument was administered to six- and seven-year olds on two consecutive days at the same time of day. Two data collectors administered the self-concept scale to the six- and seven-year olds; one read the items to children and the other watched children to insure that they were appropriately marking the answer sheets.

A 2 x 2 analysis of variance factorial design was used to analyze the data. The two experimental variables were type of classroom (multiage or single-age) and sex. The dependent variables were total reading score, total mathematics score, total language arts score, total study skills score, total self-concept score, and scores for each of the six self-concept factors. Separate analysis of variances were performed for each dependent variable. The .05 level of significance was utilized for all of the statistical tests.

FINDINGS

Multiage grouping and multigrading are terms that are used interchangeably. This school district labeled their multiage classrooms according to the grades combined rather than by the ages combined, therefore the findings in this report will be presented using the school district's grade labels. Table 1 on page 7 gives the ages that correspond to each grade level.

Academic Achievement

The results of the analysis of variance for scores on the Comprehensive Tests of Basic Skills are presented in Tables 2 - 5 on pages 13 to 14. The achievement scores analyzed and presented in these tables are Total Reading, Total Mathematics, Total Language Arts and Total Study Skills.

There were no significant differences on the effects of Classroom Type, Sex or the interaction of Classroom Type and Sex for any of the achievement variables. An examination of the F-values shows that none of them even approached the significance level designated for this study.

Self-concept

The results of the analysis of variance for scores on the Piers-Harris Children's Self-Concept Scale are presented in Tables 6, 8, 10, 12, 14, 16 and 18 on pages 15 to 21. The self-concept scores analyzed and presented in these tables are Total Self-Concept, Behavior, Intellectual and School Status, Physical Appearance and Attributes, Anxiety, Popularity, and Happiness and Satisfaction. Unlike the achievement variables, many of the main effects for the self-concept variables approached the designated significance level for this study. As a consequence the means for both Sex and Classroom Type are presented in Tables 7, 9, 11, 13, 15, 17 and 19 on pages 15 to 21.

There were no significant differences on the effects of Sex or the interaction of Classroom Type and Sex for the Total Self-Concept score or for any of the self-concept factor scores. The effect, Classroom Type, produced a significant difference on Factor 6: Happiness and Satisfaction. The multiage classrooms had a higher mean score on this factor than did the single-age classrooms. Children in the multiage classrooms had slightly but consistently higher scores on each of the other factors and on Total Self-Concept although the analysis of variance did not produce significant differences at the .05 significance level. While the effect, Sex, did not produce any significant differences for any of the self-concept scores, the girls had higher mean scores on all but one of the self-concept factors and on Total Self-Concept.

CONCLUSIONS

The purpose of this study was to explore the effects of multiage grouping on achievement and self-concept. No significant differences were found between children in multiage and single-age classrooms on any of the achievement measures examined. The self-concept measure produced a significant difference between children in multiage and single-age classrooms on the factor Happiness and Satisfaction with the multiage classrooms having a higher mean score on this factor. While the children in multiage classrooms had consistently higher mean scores than the single-age classroom children on each of the other factors and on the total self-concept score, the differences were not significant. The results of this study are consistent with those found in the literature. This study varied from most previous studies in that it was conducted entirely in a public school setting with a general population of children. The research results for this typical school setting are similar to those found with special groups as reported in the literature.

From this study, the higher scores for children in multiage classrooms on the Happiness and Satisfaction factor seem to indicate that multiage classrooms provide an atmosphere of contentment. While multiage classrooms do not appear to affect the achievement of children attending them, they do appear to be happy environments for children to learn. If multiage classrooms are providing the climate for individualized learning as suggested by several authors (Carlson, 1958; Franklin, 1967: Stehney, 1970; Wolfson, 1967), perhaps the benefits are largely in the affective domain. Children do not learn more but learning is occurring in a happier environment. Joy in the process of learning is certainly a worthy goal for education.

TABLE 2

Analysis of Variance: Reading Achievement Scores

Source	df	MS	F	p
Classroom Type (T)	1	4.25	0.00	.91
Sex (S)	1	51.65	0.05	.82
TXS	1	158.98	0.14	.71
Within	339	1150.02		
Total	342			

TABLE 3

Analysis of Variance: Mathematics Achievement Scores

Source	df	MS	F	p
Classroom Type (T)	1	102.30	0.06	.79
Sex (S)	1	4.01	0.00	.91
TXS	1	3.40	0.00	.92
Within	339	1681.03		
Total	342			

TABLE 4

Analysis of Variance: Language Arts Achievement Scores

Source	df	MS	F	p
Classroom Type (T)	1	1.94	0.00	.92
Sex (S)	1	416.91	0.39	.54
TXS	1	100.79	0.10	.75
Within	339	1063.37		
Total	342			

TABLE 5

Analysis of Variance: Study Skills Achievement Scores

Source	df	MS	F	p
Classroom Type (T)	1	1.56	0.01	.90
Sex (S)	1	22.02	0.07	.78
TXS	1	78.88	0.25	.63
Within	339	318.63		
Total	342			

TABLE 6

Analysis of Variance: Total Self-Concept Scores

Source	df	MS	F	p
Classroom Type (T)	1	335.21	2.46	.11
Sex (S)	1	323.94	2.38	.12
TXS	1	22.69	0.17	.69
Within	372	136.06		
Total	375			

TABLE 7

Mean Total Self-Concept Scores As A Function of Classroom Type And Sex

Sex	Classroom Type		Total
	Multiage	Single-Age	
Females	63.40	61.97	62.54
Males	62.15	59.72	60.69
Total	62.77	60.85	

TABLE 8

Analysis of Variance: Factor 1, Behavior Scores

Source	df	MS	F	p
Classroom Type (T)	1	11.47	1.73	.19
SEX (S)	1	15.36	2.32	.12
TXS	1	2.95	0.45	.51
Within	372	6.62		
Total	375			

TABLE 9

Mean Factor 1, Behavior Scores As A Function Of Classroom Type And Sex

Sex	Classroom Type		
	Multiage	Single-Age	Total
Females	13.71	13.53	13.60
Males	13.52	12.98	13.20
Total	13.19	13.26	

TABLE 10

Analysis of Variance: Factor 2, Intellectual and School Status Scores

Source	df	MS	F	p
Classroom Type (T)	1	15.56	1.74	.19
Sex (S)	1	14.96	1.67	.19
TXS	1	9.93	1.11	.29
Within	372	8.96		
Total	375			

TABLE 11

Mean Factor 2, Intellectual and School Status Scores As A Function Of Classroom Type and Sex

Sex	Classroom Type		
	Multiage	Single-Age	Total
Females	13.88	13.80	13.83
Males	13.88	13.13	13.43
Total	13.88	13.47	

TABLE 12

Analysis of Variance: Factor 3, Physical Appearance and Attributes Scores

Source	df	MS	F	p
Classroom Type (T)	1	20.76	2.36	.12
Sex (S)	1	25.02	2.84	.09
TXS	1	10.45	1.19	.28
Within	372	8.80		
Total	375			

TABLE 13

Mean Factor 3, Physical Appearance and Attributes Scores As A Function Of Classroom Type and Sex

Sex	Classroom Type		
	Multiage	Single-Age	Total
Females	9.49	9.35	9.41
Males	9.39	8.57	8.89
Total	9.44	8.96	

TABLE 14

Analysis of Variance: Factor 4, Anxiety Scores

Source	df	MS	F	p
Classroom Type (T)	1	12.47	1.59	.21
Sex (S)	1	21.07	2.69	.10
TXS	1	0.07	0.01	.89
Within	372	7.84		
Total	375			

TABLE 15

Mean Factor 4, Anxiety Scores As A Function Of Classroom Type and Sex

Sex	Classroom Type		Total
	Multiage	Single-Age	
Females	10.79	10.44	10.58
Males	11.29	10.89	11.05
Total	11.04	10.67	

TABLE 16

Analysis of Variance: Factor 5, Popularity Scores

Source	df	MS	F	p
Classroom Type (T)	1	7.01	1.35	.24
Sex (S)	1	14.56	2.81	.09
TXS	1	1.73	0.33	.57
Within	372	5.19		
Total	375			

TABLE 17

Mean Factor 5, Popularity Scores As A Function Of Classroom Type and Sex

Sex	Classroom Type		Total
	Multiage	Single-Age	
Females	8.29	7.88	8.04
Males	7.73	7.59	7.65
Total	8.01	7.74	

TABLE 18

Analysis of Variance: Factor 6: Happiness and Satisfaction Scores

Source	df	MS	F	p
Classroom Type (T)	1	21.65	5.35	.02*
Sex (S)	1	13.03	3.22	.07
TXS	1	0.11	0.03	.85
Within	372	4.05		
Total	375			

*p < .05

TABLE 19

Mean Factor 6, Happiness and Satisfaction Scores As A Function Of Classroom Type And Sex

Sex	Classroom Type		Total
	Multiage	Single-Age	
Females	8.45	7.93	8.14
Males	8.04	7.58	7.77
Total	8.25	7.76	

REFERENCES

Adams, J. J. Achievement and social adjustment of pupils in combination classes enrolling pupils of more than one grade level. Journal of Educational Research, 1953, 47, 151-155.

Brown, M. & Precious, N. The integrated day in the primary school. New York: Agathon Press, 1969.

Buros, O. K. (Ed.). The seventh mental measurements yearbook (Vol. 1) Highland Park, New Jersey: The Gryphon Press, 1972.

Carlson, W. H. Interage grouping. Educational Leadership, 1958, 15, 363-368.

Chace, E. S. An analysis of some effects of multiple-grade grouping in an elementary school (Doctoral dissertation, The University of Tennessee, 1961). Dissertation Abstracts, 1962, 22, 3544-3545. (University Microfilms No. 61-6725)

Duke, D. L. The selling of the open school. The Journal of Educational Thought, 1973, 7(1), 36-47.

Finley, C. J., & Thompson, J. M. A comparison of the achievement of multi-graded and single-graded elementary school children. Journal of Educational Research, 1963, 56(9), 471-475.

Franklin, M. P. Multigrading in elementary education. Childhood Education, 1967, 43, 513-515.

Hamilton, W., & Rehwoldt, W. By their differences they learn. The National Elementary Principal, 1957, 37(4), 27-29.

Hoen, R. R. An evaluation of multi-age classes at Carnarvon School, 1971-72. Vancouver, British Columbia: Dept. of Planning & Evaluation, Vancouver Board of School Trustees, 1972. (ERIC Document Reproduction Service No. ED 076 649)

Jersild, A. T. In search of self. New York: Teachers College Bureau of Publications, 1952.

Junell, J. S. An analysis of the effects of multigrading on a number of noncognitive variables (Doctoral dissertation, University of Washington, 1970). Dissertation Abstracts International, 1971, 32, 94A-95A. (University Microfilms No. 71-16, 961)

MacDonald, P. A., & Wurster, S. R. Multiple grade primary versus segregated first grade: effects on reading achievement. Tempe, Arizona: Arizona State University, 1974. (ERIC Documents Reproduction Service No. 094 336)

Mycock, M. A. A comparison of vertical grouping and horizontal grouping in the infant school. British Journal of Educational Psychology, 1967, 37, 133-35.

National Education Association. Multi-age grouping — enriching the learning environment. Washington, D. C.: Author, 1968. (ERIC Document Reproduction Service No. ED 017 343)

Papay, J. P., Costello, R. J., Hedl, J. J., Jr., & Spielberger, C. D. Effects of trait and state anxiety on the performance of elementary school children in traditional and individualized multiage classrooms. Journal of Educational Psychology, 1975, 67(6), 840-846.

Piers, E. V. Manual for the Piers-Harris children's self-concept scale. Nashville, Tennessee: Counselor Recordings and Tests, 1969.

Piers, E. V. The Piers-Harris children's self-concept scale. research monograph # 1. Nashville, Tennessee: Counselor Recordings and Tests, 1977.

Piers, E. V., & Harris, D. A. Age and other correlations of self-concept in children. Journal of Educational Psychology, 1964, 55, 91-95.

Purl, M. C., & Curtis, J. A look at combination class effects at Emerson Elementary School. Riverside, California: Riverside Unified School District, 1970. (ERIC Document Reproduction Service No. ED 042 863)

Ridgway, L., & Lawton, I. Family grouping in the primary school. New York: Agathon Press, 1969.

Runyon, R. D. Early identification of the gifted through interage grouping. end of the year report. Bethpage, New York: Plainedge Public Schools, 1962. (ERIC Document Reproduction Service No. ED 030 989)

Schrankler, W. J. Family groupings and the affective domain. The Elementary School Journal, 1976, 76(7), 432-439.

Schroeder, R., & Nott, R. E. Multi-age grouping...it works! Catalyst for Change, 1974, 3, 15-18.

Stehney, V. A. Why multiage grouping in the elementary school? The National Elementary Principal, 1970, 49(3), 21-23.

Wolfson, B. J. The promise of multiage grouping for individualized instruction. The Elementary School Journal, 1967, 67, 354-362.

Yerry, M. J., & Henderson, E. Effects of interage grouping on achievement and behavior. end of the year report. Bethpage, New York: Plainedge Public Schools, 1964. (ERIC Documents Reproduction Service No. ED 037 802)

APPENDIX A

FIRST AND SECOND GRADE ANSWER SHEETS

FOR

PIERS-HARRIS CHILDREN'S SELF-CONCEPT SCALE

THE PIERS - HARRIS
CHILDREN'S SELF CONCEPT SCALE

*

ODE _____

EMS 1-10

		YES	NO
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2.			
3.			
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RESEARCH AND DEVELOPMENT OFFICE
INSTITUTE FOR EXPERIMENTATION IN TEACHER EDUCATION
SUNY, CORTLAND, NEW YORK

THE PIERS - HARRIS
CHILDREN'S SELF CONCEPT SCALE

CODE _____
ITEMS 11-20

		YES	NO
_1.			
_2.			
_3.			
_4.			
_5.			
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THE PIERS - HARRIS
CHILDREN'S SELF CONCEPT SCALE

CODE _____
ITEMS 21-30

		YES	NO
1.			
2.			
3.			
4.			
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SUNY, CORTLAND, NEW YORK

THE PIERS - HARRIS
CHILDREN'S SELF CONCEPT SCALE

CODE _____

ITEMS 31-40

		YES	NO
1.			
2.			
3.			
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SUNY, CORTLAND, NEW YORK

THE PIERS - HARRIS CHILDREN'S SELF CONCEPT SCALE

CODE _____

ITEMS 41-50

		YES	NO
1.			
2.			
3.			
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SUNY, CORTLAND, NEW YORK

THE PIERS - HARRIS
CHILDREN'S SELF CONCEPT SCALE

CODE ____

ITEMS 51-60

		YES	NO
1.			
2.			
3.			
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SUNY, CORTLAND, NEW YORK

THE PIERS - HARRIS CHILDREN'S SELF CONCEPT SCALE

CODE _____

ITEMS 61-70

		YES	NO
1.			
2.			
3.			
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9.			
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SUNY, CORTLAND, NEW YORK

THE PIERS - HARRIS
CHILDREN'S SELF CONCEPT SCALE

CODE _____
ITEMS 71-80

		YES	NO
1.			
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